

CLAIMS

We claim as our invention:

1. A hydraulic system for a work vehicle, comprising:
a first hydraulic pump configured to generate a flow of hydraulic fluid;
a priority valve in fluid communication with the pump, said priority valve being configured to distribute the flow to a primary outlet and to a secondary outlet;
a plurality of open center hydraulic valves coupled to the secondary outlet; and
a plurality of closed center hydraulic valves coupled to the primary outlet.
2. The system of claim 1, wherein the first hydraulic pump is a fixed displacement gear pump, and further wherein the priority valve is responsive to a load on the plurality of closed center valves.
3. The system of claim 2, wherein the plurality of closed center valves includes at least one valve selected from the group comprising a boom swing cylinder control valve, a boom cylinder control valve, a dipper cylinder control valve, and a bucket cylinder control valve.
4. The system of claim 3, wherein the plurality of open center valves include at least one valve selected from the group comprising a loader bucket cylinder valve and a loader arm cylinder valve.
5. The system of claim 3 comprising a second hydraulic pump coupled to and driving the plurality of closed center hydraulic valves, the second pump being responsive to some loads that control the priority valve and independent of other loads that control the priority valve.

6. The system of claim 1, wherein no inlet compensator is in fluid communication with and disposed between the plurality of closed center hydraulic valves and the first pump.

7. The system of claim 1, further comprising a second fixed displacement hydraulic pump disposed to provide the plurality of closed center valves with hydraulic fluid.

8. The system of claim 7, further comprising a reloader valve coupled to and between the second hydraulic pump and the plurality of closed center valves, the reloader valve being responsive to a load signal on a load signal line coupled to the plurality of closed center valves.

9. A hydraulic system for a work vehicle, comprising:
an engine;
a first hydraulic pump driven by the engine and configured to generate a flow of hydraulic fluid;
a priority valve in fluid communication with the pump, said priority valve being configured to distribute the flow to a primary outlet and to a secondary outlet;
a plurality of open center hydraulic valves coupled to one of the primary and secondary outlets;
a plurality of closed center hydraulic valves coupled to another of the primary and secondary outlets; and
a second hydraulic pump driven by the engine and configured to provide hydraulic fluid to the plurality of closed center valves.

10. The system of claim 9, wherein the first and second hydraulic pumps are fixed displacement gear pumps.

11. The system of claim 10, wherein the plurality of closed center valves include at least one valve selected from the group comprising a boom swing actuator control valve, a boom actuator control valve, a dipper actuator control valve, and a bucket actuator control valve.

12. The system of claim 11, wherein the plurality of open center valves include at least one valve selected from the group comprising a loader bucket actuator valve and a loader arm actuator valve.

13. The system of claim 9, wherein the second hydraulic pump is coupled to and drives the plurality of closed center hydraulic valves in conjunction with the first pump in at least one mode of operation.

14. The system of claim 13, wherein the second hydraulic pump is configured to be responsive to at least one load that controls the priority valve.

15. The system of claim 13, wherein the second hydraulic pump is configured to be independent of at least one load that controls the priority valve.

16. The system of claim 13, wherein no inlet compensator is in fluid communication with and disposed between the plurality of closed center hydraulic valves and the first pump.

17. The system of claim 13, further comprising a reloader valve coupled to and between the second hydraulic pump and the plurality of closed center valves, the reloader valve being responsive to a load signal on a load signal line coupled to the plurality of closed center valves.